913-83 Exercise Echocardiography (EE) After Angioplasty; Prediction of Restenosis

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Exercise echocardiography was used to assess coronary patency in 22 patients enrolled at one center in a randomized trial of a drug for prevention of restenosis after PTCA (MARCATOR trial). EE was performed 6 months after PTCA by comparing resting echo with images recorded after maximal symptom-limited treadmill exercise. Results were compared with subsequent protocol-mandated 6 month follow up coronary angiography and with the exercise ECG (ExECG) and presence/absence of angina. EE was interpreted prior to follow up catheterization and without knowledge of symptomatic status. 24 lesions were dilated: LAD 11 pts, RCA 8 pts, LCx 5 pts. Restenosis, defined as ≥ 50% diameter reduction following cath, occurred in 70% of patients. The results are shown in the table.

	Sensitivity%	Specificity%	+Pred. Acc.%	−Pred. Acc.%
EE	94	86	94	86
ExECG	41	86	87	38
Angina	18	86	75	30

In this group of patients with a high restenosis rate, EE was highly accurate for predicting coronary patency 6 months after PTCA. In contrast, most patient with no angina and/or normal ExECG had restenosis. We concluded: 1) EE is a reliable method for follow up of PTCA patients; 2) ExECG and angina are not sensitive indicators of restenosis after PTCA.

914 Prognosis Value of Nuclear Imaging

Monday, March 25, 1996, Noon–2:00 p.m.
Orange County Convention Center, Hall E
Presentation Hour: 1:00 p.m.–2:00 p.m.

MONDAY POSTER

914-93 Prognostic Value of Dipyridamole Imaging in Patients With Left Bundle Branch Block: A Review of 96 Patients

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The detection of myocardial ischemia in patients with preexisting left bundle branch block (LBBB) remains problematic. Pharmacologic stress testing with dipyridamole thallium or MIBI imaging is now used routinely in such patients for detection of significant coronary artery disease (CAD). Little data exists on the prognostic value of cardiac nuclear scintigraphy in patients with preexisting LBBB.

Objective: To determine the prognostic value of cardiac nuclear scintigraphy in patients with preexisting LBBB.

Methods: 96 patients with preexisting LBBB underwent perfusion imaging between July 1987 and June 1995. 40 underwent planar thallium perfusion imaging and 56 underwent SPECT MIBI imaging. Images were interpreted by consensus of two experienced observers and classified as normal, abnormal low risk and abnormal high risk. Outcomes measured were survival, cardiac and non-cardiac death. The final study group included 53 men and 43 women, aged 42 to 83 (mean 66 ± 9). Average follow-up was 3.1 ± 2.5 years.

Results:

	Alive	Cardiac death	Noncardiac death
Normal	27	2	2
Low risk	36	2	1
High risk	17	8	1

Chi-square p-value = 0.020

Conclusions: Dipyridamole imaging is an important prognostic tool for predicting future cardiac events in patients with preexisting LBBB and aids in risk stratification for patients with CAD.

914-94 Is Thallium SPECT Predictive of Cardiac Events in Women With Low to Intermediate Cardiac Risk?

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In women, the prognostic value of thallium (Tl) has not been established until now, and, morever, accuracy of Tl-SPECT has been recently argued. The aim of our study was to determine whether Tl-SPECT could accurately predict the occurence of cardiovascular death and non fatal myocardial infarction (MI) in a population of women with low to intermediate cardiac risk, referred to our institution for the diagnosis of a chest pain. For this purpose, 623 women and 1303 men were compared and followed on average 34 ± 10 months after a stress Tl-SPECT (exercise: 1121, dipyridamole: 805). Tl-SPECT was considered as abnormal if there was one or more segment with fixed or reversible defect.

Results: At follow up, the occurence of cardiac deaths and non fatal MI was respectively: for men 4.4% and 3.3%; for women 3.0% and 2.6%. Only 8 (2.5%) men underwent cardiac events with a normal Tl-SPECT versus 76 (7.8%) with an abnormal TL-SPECT (OR 3.0, $p < 0.001$). Two women (0.5%) experienced cardiac events with a normal Tl-SPECT versus 13 (5.7%) with an abnormal TL-SPECT (OR 11.3, $p < 0.001$). However, due to a lower prevalence of coronary artery disease in women, (37% of Tl were abnormal in female versus 75% in male), the positive predictive value for major events of an abnormal Tl-SPECT was lower in female (5.6%) than in male (7.7%).

Conclusion: In spite of a lower prevalence of abnormal scans and a lower occurence of cardiac events, the prognostic value of Tl-SPECT is maintained in women.

914-95 Incremental Prognostic Value of Nuclear Testing Using Adenosine Stress

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To assess the incremental prognostic value of myocardial perfusion SPECT using adenosine stress, we examined 1143 consecutive patients (pts) who underwent rest Tl/adenosine stress Tc-99m sestamibi dual isotope myocardial perfusion SPECT (DIMPS) and were followed for at least 1 year for events [cardiac death (CD), non-fatal myocardial infarction(MI)]. DIMPS was visually assessed using 20 segments scored on a 5 point scale (0 = normal, 4 = no uptake) and rest and stress scores were used to calculate the summed stress score (SSS), summed rest score (SRS), and summed difference score (SDS = (SSS-SRS)). During a mean follow-up period of 2.3 ± 0.8 years, 131 events occurred (12.3%; 59 MI and 72 CD); 80 pts were censored due to early revascularization. Using a stepwise Cox proportional hazards model, we found that pre-scan Lk yielded significant information ($\chi^2 = 21$). SSS, the most predictive nuclear variable, added significant further information ($\chi^2 = 94$, $p < 0.0001$). ST segment change during adenosine added further information ($\chi^2 = 100$, $p < 0.0001$). Subgroup stratification was as follows:

Pre-scan Lk	SSS 0–3	SSS 4–8	SSS > 8
Low (< 0.15)	0.0/0.0 (82)	3.1/0.0 (32)	0.0/13 (15)*
Int (0.15–0.85)	0.4/0.0 (263)	2.4/1.6 (124)	5.8/7.1 (155)*
High (> 0.85)	0.0/1.5 (67)	2.3/1.1 (88)	5.1/6.8 (235)*
All	0.2/0.2 (412)	2.4/1.2 (245)	5.2†/7.2 (405)*

Rates (%) of MI/CD in first year, () = n; Lk: likelihood of CAD; *$p < 0.05$ across SSS groups for CD,MI; †$p < 0.001$ for CD vs SSS 4–8.

Conclusions: DIMPS with adenosine stress added significant incremental prognostic value over clinical information alone, further stratifying pts in all Lk groups. Pts with SSS > 8 are at high risk for cardiac death.

914-96 Prognostic Value of Dobutamine-Atropine Sestamibi Imaging

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Rationale: There are no published data on the prognostic value of dobutamine-atropine sestamibi SPECT (DASS).

Methods: 418 patients with chest pain underwent DASS. Mean age was 60 years, 238 were men and 203 had a previous infarction. SPECT patterns were divided into normal (NORM, n = 132), fixed defects alone (FD, n = 109), reversible defects alone (RD, n = 64) and partially reversible defects (PRD, n = 113). A reversible defect score (RDS) was calculated by summating the reversible defects according to a 6 (extent) × 4 (severity) model (range 0–18). The value of clinical and imaging variables was analyzed using stepwise logistic regression.

Results: During an average follow-up of 22 ± 13 months, 46 patients had cardiac death or nonfatal myocardial infarction. Annual event rates for the imaging patterns were: 0.8% for NORM, 6.2% for FD, 7.5% for RD and 11.2% for PRD. Patients with a RDS of 0, 1–2, 3–4, > 4 (n = 208, 110, 64, 36) had a 3.3%, 6.4% 9.3% and 15.2% annual event rate, respectively. Multivariate analysis demonstrated that age (OR = 2.0; 95% CI, 1.0–4.1), an abnormal scan (OR = 9.9; 95% CI, 2.3–42.5), fixed defects (OR = 2.2; 95% CI, 1.0–4.7) and reversible defects (OR = 3.1; 95% CI, 1.6–6.1) had independent predictive value.